IN THE SPECIFICATION

The Examiner has requested that we check the specification for the presence of minor errors. Applicant has reviewed the specification and found a typographical error on page 15, line 15.

Kindly amend page 15, line 15 as follows:

delete "secondary" and insert thereof – tertiary--.

In the Claims:

Please cancel claims 2, 3, 5, 6, 7, 17.

Please amend claims 1, 4, 13, 16, 18, 20, 25, 28, 29 and 30 as follows:

Claim 1 (amended). A method for automatic dose control of a liquid treatment chemical during a liquid treatment process within a treatment system, the system having an influent flow and an effluent flow, the method comprising:

a. measuring the liquid flow rate [through the treatment system] at a site wherein the site is selected from any one of a group of sites consisting of an influent flow site, an effluent flow site or a combination thereof, and generating a liquid flow rate signal from the measurement;

b. measuring the concentration of a chemical [through the treatment system] at a site wherein the site is an influent flow site, an effluent flow site or a combination thereof, and generating a chemical concentration signal from the measurement;

c. transmitting the signal generated from step (a) and the signal generated from step (b) to a chemical dosing controller;

d. automatically calculating the dosage of a chemical from signals supplied to the chemical dosing controller;

e. transmitting an output signal from the chemical dosing controller to a chemical feeding system, the output signal based on dosage calculated in step (d);

f. releasing the chemical from step d into influent flow in response to output signal of step (e); and

g. repeating steps (a)-(f) continuously during the liquid treatment process.

Claim 27 (amended). [The method of claim 4] A method for automatic dose control of a liquid treatment chemical during a liquid treatment process within a treatment system, the system having an influent flow and an effluent flow, the method comprising:

a. measuring the liquid flow rate through the treatment system and generating a liquid flow rate signal from the measurement and adjusting the liquid flow rate signal [wherein the liquid flow rate is adjusted] by a flow pace multiplier;

b. measuring the concentration of a chemical through the treatment system and generating a chemical concentration signal from the measurement;

c. transmitting the signal generated from step (a) and the signal generated from step (b) to a chemical dosing controller;

d. automatically calculating the dosage of a chemical from signals supplied to the chemical dosing controller;

e. transmitting an output signal from the chemical dosing controller to a chemical feeding system, the output signal based on dosage calculated in step (d);

f. releasing the chemical from step d into influent flow in response to output signal of step (e); and

g. repeating steps (a)-(f) continuously during the liquid treatment process.

Claim 8 (amended). A method for automatic dose control of nitrate-nitrogen during a water treatment process within a denitrification treatment system using a chemical source of organic carbon as the feed chemical, the system having an influent flow and an effluent flow, the method comprising:

a. measuring the water flow rate [through the treatment system] at a site wherein the site is selected from any one of a group of sites consisting of an influent flow site, an effluent flow site or a combination thereof and generating a water flow rate signal from the measurement;

b. measuring the concentration of a chemical [through the treatment system] at a site wherein the site is an influent flow site, an effluent flow site or a combination thereof, and generating a chemical concentration signal from the measurement;

c. transmitting the signal generated from step (a) and the signal generated from step (b) to a chemical dosing controller;

d. automatically adjusting the nitrate/nitrogen signal by at least one adjustable dose factor;

e. automatically calculating the dosage of the feed chemical from adjusted signals supplied to chemical dosing controller;

f. transmitting an output signal from the chemical dosing controller to a chemical feeding system, the output signal based on dosage calculated in step (e);

g. releasing the feed chemical into the influent flow in response to the output signal of step (f); and

h. repeating steps (a)-(g) continuously during the denitrification process.

Claim 16 (amended). [The method of claim 13] A method for automatic dose control of nitrate-nitrogen during a water treatment process within a denitrification treatment system using a chemical source of organic carbon as the feed chemical, the system having an influent flow and an effluent flow, the method comprising:

a. measuring the water flow rate at a site wherein the site is an influent flow site, an effluent flow site or a combination thereof and generating a water flow rate signal from the measurement;

b. measuring the concentration of a chemical at a site wherein the site is selected from any one of a group of sites consisting of an influent flow site, an effluent flow site or a combination thereof, and generating a chemical concentration signal from the measurement;

c. transmitting the signal generated from step (a) and the signal generated from step (b) to a chemical dosing controller wherein the water flow rate signal of step [(c)] (a) is automatically adjusted by a flow pace multiplier;

d. automatically adjusting the nitrate/nitrogen signal by at least one adjustable dose factor;

e. automatically calculating the dosage of the feed chemical from adjusted signals supplied to chemical dosing controller;

f. transmitting an output signal from the chemical dosing controller to a chemical feeding system, the output signal based on dosage calculated in step (e);

g. releasing the feed chemical into the influent flow in response to the output signal of step (f); and

h. repeating steps (a)-(g) continuously during the denitrification process.

Claim 18. (amended) The method of claim ~~17~~ 3 wherein a setpoint for effluent nitrate-nitrogen is selected, an effluent flow concentration signal is generated from the measurement of concentration of nitrate-nitrogen in the effluent flow and the concentration signal is transmitted to the chemical dosing controller.

Claim 20 (amended). [The method of claim 19] A method for automatic dose control of nitrate-nitrogen during a water treatment process within a denitrification treatment system using a chemical source of organic carbon as the feed chemical, the system having an influent flow and an effluent flow, the method comprising:

a. measuring the water flow rate through the treatment system and generating a water flow rate signal from the measurement;

b. measuring the concentration of a chemical at a site wherein the site is an effluent flow site, selecting [wherein] a setpoint for effluent nitrate-nitrogen [is selected,] and generating an effluent flow concentration signal [is generated] from the measurement of concentration of nitrate-nitrogen in the effluent flow [and the concentration signal is transmitted to the chemical dosing controller];

c. transmitting the signal generated from step (a) and the signal generated from step (b) to a chemical dosing controller ;

d. calculating the difference between the effluent concentration of nitrate-nitrogen and the setpoint to generate a control response, adjusting the control response by one or more sensitivity factors and automatically incorporating the adjusted control response into the calculation for the dosage of the feed chemical wherein the dosage is used to generate a

modified output sign which is transmitted from the chemical dosing controller to the chemical feeding system [.];

e. releasing the feed chemical into the influent flow in response to the output signal of step (f); and

h. repeating steps (a)-(e) continuously during the denitrification process

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Claim 24 (amended) The method of claim [13] 20 wherein the nitrate-nitrogen signal is automatically adjusted by at least one adjustable dose factor.

Claim 25. (amended) A method for automatic dose control of nitrate-nitrogen during a water treatment process within a denitrification treatment system using a chemical source of organic carbon as the feed chemical, the system having an influent flow and an effluent flow, the method comprising:

a. selecting a setpoint for effluent nitrate-nitrogen;

b. measuring the water flow rate [through the treatment system] at an effluent flow site, and generating a water flow rate signal from the measurement;

c. measuring the concentration of nitrate-nitrogen in the effluent flow and generating a chemical concentration signal from the measurement;

d. transmitting the signal generated from step (b) and the signal generated from step (c) to a chemical dosing controller;

e. calculating the difference between the effluent concentration of nitrate-nitrogen and the setpoint to generate a control response;

f. adjusting the control response by one or more sensitivity factors;

g. automatically calculating the dosage of the feed chemical from the control response;

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h. transmitting output signal from chemical dosing controller to the chemical feeding system, the output signal based on dosage calculated in step (g);

i. releasing the feed chemical into influent flow in response to output signal of step (h); and

j. repeating steps (a)-(i) continuously during the denitrification process.

Claim 28. (amended) [The method of claim 27] A method for automatic dose control of nitrate-nitrogen during a water treatment process within a denitrification treatment system using a chemical source of organic carbon as the feed chemical, the system having an influent flow and an effluent flow, the method comprising:

a. selecting a setpoint for effluent nitrate-nitrogen;

b. measuring the water flow rate through the treatment system and generating a water flow rate signal from the measurement, wherein the water flow rate signal [from step (d)] is adjusted by a flow pace multiplier;

c. measuring the concentration of nitrate-nitrogen at an effluent flow site and generating a chemical concentration signal from the measurement;

d. transmitting the signal generated from step (b) and the signal generated from step (c) to a chemical dosing controller;

e. calculating the difference between the effluent concentration of nitrate-nitrogen and the setpoint to generate a control response;

f. adjusting the control response by one or more sensitivity factors;

g. automatically calculating the dosage of the feed chemical from the control response;

h. transmitting output signal from chemical dosing controller to the chemical feeding system, the output signal based on dosage calculated in step (g);

i. releasing the feed chemical into influent flow in response to output signal of step (h); and

j. repeating steps (a)-(i) continuously during the denitrification process.

Claim 29. (amended) The method of claim [27] 28 wherein the calculation of an output signal from the chemical dosing controller to the chemical feeding system is based on water flow rate, concentration of nitrate-nitrogen in the influent flow and concentration of nitrate-nitrogen in the effluent flow.

Claim 30. (amended) The method of claim [25] 28 wherein the calculation of succeeding control responses in step (e) is performed after a reset time.

BASIS FOR AMENDMENTS

As suggested by the Examiner, claims 4, 16, 20 and 28 have been rewritten in independent form to include all of the limitations of their respective base claims and any intervening claims. Claims 21-24 depend from new amended claim 20. Independent claims 1, 13, 20 and 25 have been amended to combine the limitations of dependant claims 2, 3, 5, 6, 7 and 17 into their respective independent claims. These amendments were made to more particularly clarify the features of the invention as described in the specification. The present amendments add no new matter. There being no new matter, and the claimed subject matter being supported by the specification as originally filed, entry of the amendments is believed to be in order, and is respectfully requested. Withdrawal of the objection to

these claims 4, 16, 20-24, and 28-34 and allowance of these claims is respectfully requested.